Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (withdrawn) Human poypeptide designated Cyk-4, which is a GTPase activating protein (GAP) for Rho family of GTPases, with the amino acid sequence as set forth in SEQ ID NO:2 or with the amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

2. (withdrawn) Murine Cyk-4 poypeptide designated Cyk-4, which is a GTPase activating protein (GAP) for Rho family of GTPases, with the amino acid sequence as set forth in SEQ ID NO:4 or with the amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

3. (withdrawn) An isolated DNA molecule comprising a polynucleotide with the nucleotide sequence as set forth in SEQ ID NO:1 encoding human Cyk-4 polypeptide, or an isolated DNA molecule encoding human Cyk-4 polypeptide comprising a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

4. (withdrawn) An isolated DNA molecule comprising a polynucleotide with the nucleotide sequence as set forth in SEQ ID NO:3 encoding murine Cyk-4 polypeptide, or an isolated DNA molecule encoding murine Cyk-4 polypeptide comprising a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

5. (withdrawn) An antibody which is specifically reactive with an epitope of the human Cyk-4 polypeptide of claim 1.

6. (withdrawn) An antibody which is specifically reactive with an epitope of the murine Cyk-4 polypeptide of claim 2.

7. (cancelled)

8. (cancelled)

9. (cancelled)

10. (cancelled)

11. (withdrawn) The method of claim 7 wherein the compound's ability to inhibit MKLP1 function is determined by determining the compound's ability to interfere with the biochemical multimerization of a member of the MKLP1 subfamily.

12. (withdrawn) A compound identified in the method of any one of claims 7 to 11 for use in cancer therapy.

13. (new) A method for identifying a compound capable of modulating cytokinesis, said method comprising determining said compound's ability to modulate the ability of a CYK-4 GTPase activating protein (GAP) or fragment thereof to promote GTP hydrolysis by a Rho family GTPase, wherein said fragment comprises a GAP domain of said CYK-4 GTPase activating protein.

14. (new) The method of claim 13, wherein said compound's ability to modulate the ability of said CYK-4 GTPase activating protein (GAP) or fragment thereof to promote GTP hydrolysis by said Rho family GTPase is determined by a screening method which comprises:

(i) incubating said Rho family GTPase with GTP for a period of time sufficient to allow saturation of said Rho family GTPase's GTP binding sites;

(ii) adding said CYK-4 GTPase activating protein or fragment thereof to said Rho family GTPase and said GTP, in the presence or absence of said compound; and

(iii) determining an amount of GTP that is hydrolyzed;

wherein said amount of GTP that is hydrolyzed is used to determine said compound's ability to modulate the ability of said CYK-4 GTPase activating protein to promote GTP hydrolysis by said Rho family GTPase.

15. (new) The method of claim 14, wherein said Rho family GTPase is a full-length Rho family GTPase protein or a fragment of said Rho family GTPase protein that retains GTPase activity.

16. (new) The method of claim 15, wherein said CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2); a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; murine CYK-4 (SEQ ID NO:4); and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

17. (new) The method of claim 16, wherein said CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2) and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

18. (new) The method of claim 17, wherein said Rho family GTPase is selected from the group consisting of human RhoA, human RhoB, human RhoC, human RAC1, human RAC2, human RAC3, and human GB25.

19. (new) The method of claim 18, wherein said Rho family GTPase is human RhoA.

20. (new) The method of claim 15, wherein said Rho family GTPase is immobilized on a solid support.

21. (new) The method of claim 15, wherein said GTP is labeled.

22. (new) The method of claim 21, wherein said GTP is labeled with a radioisotope or a fluorescent label.

23. (new) A method for identifying a compound capable of modulating cytokinesis, said method comprising determining said compound's ability to interfere with the ability of a CYK-4 GTPase activating protein (GAP) or fragment thereof to interact with a member of the MKLP1 subfamily of kinesin-like proteins, wherein said fragment comprises a domain of said CYK-4 GTPase activating protein that interacts with said member of the MKLP1 subfamily of proteins.

24. (new) The method of claim 23, wherein said compound's ability to interfere with the ability of a CYK-4 GTPase activating protein (GAP) or fragment thereof to interact with a member of the MKLP1 subfamily of kinesin-like proteins is determined using a screening method which comprises:

(i) incubating said CYK-4 GTPase activating protein or said fragment

thereof for a period of time with said MKLP1 protein subfamily member, in the presence or absence of said compound; and

(ii) determining an amount of said MKLP1 protein subfamily member bound to said CYK-4 GTPase activating protein or said fragment;

wherein said amount of said MKLP1 protein subfamily member bound to said CYK-4 GTPase activating protein or fragment thereof is used to determine said compound's ability to interfere with the ability of said CYK-4 GTPase activating protein or fragment thereof to interact with said MKLP1 protein subfamily member.

25. (new) The method of claim 24, wherein said MKLP1 protein subfamily member is a full-length MKLP1 protein or a fragment of said MKLP1 protein subfamily member that comprises a domain that interacts with said CYK-4 GTPase activating protein.

26. (new) The method of claim 25, wherein said MKLP 1 protein subfamily member is selected from the group consisting of CeM03D4.1b (C. elegans; GenBank ID U61955, Protein ID 1397342) and HsMKLP1 (human; GenBank ID X67155; SwissProt Q02241).

27. (new) The method of claim 26, wherein said MKLP 1 protein subfamily member is HsMKLP1.

28. (new) The method of claim 25, wherein said CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2); a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; murine CYK-4 (SEQ ID NO:4); and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

29. (new) The method of claim 28, wherein said CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2) and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

30. (new) The method of claim 28, wherein said fragment of said CYK-4 GTPase activating protein comprises the N-terminal region containing amino acids 1-120.

31. (new) The method of claim 25, wherein said CYK-4 GTPase activating protein or fragment thereof is immobilized on a solid support, and wherein said MKLP1 protein subfamily member or fragment thereof is labeled.

32. (new) The method of claim 31, wherein said label is a radioisotope, a fluorescent label, or a hapten.

33. (new) The method of claim 25, wherein step (i) is performed in solution.

34. (new) A method for identifying a compound capable of modulating cytokinesis, said method comprising determining said compound's ability to interfere with self association of a CYK-4 GTPase activating protein (GAP) or fragment thereof, wherein said fragment comprises a domain of said CYK-4 GTPase activating protein that mediates self-association.

35. (new) The method of claim 34, wherein said compound's ability to interfere with self association of a CYK-4 GTPase activating protein (GAP) or fragment thereof is determined using a screening method which comprises:

(i) incubating in the presence or absence of said compound a first CYK-4 GTPase activating protein or fragment thereof with a second CYK-4 GTPase activating protein or fragment thereof, wherein said second CYK-4 GTPase activating protein or fragment thereof is labeled; and

(ii) determining an amount of said second CYK-4 GTPase activating protein or fragment thereof bound to said first CYK-4 GTPase activating protein or fragment thereof;

wherein said amount of said second CYK-4 GTPase activating protein or fragment thereof bound to said first CYK-4 GTPase activating protein or fragment thereof is used to determine said compound's ability to interfere with said self association of said CYK-4 GTPase activating protein (GAP) or fragment thereof.

36. (new) The method of claim 35, wherein said first CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2); a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; murine CYK-4 (SEQ ID NO:4); and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

37. (new) The method of claim 35, wherein said second CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2); a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; murine CYK-4 (SEQ ID NO:4); and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

38. (new) The method of claim 37, wherein said first CYK-4 GTPase activating protein is selected from the group consisting of human CYK-4 (SEQ ID NO:2) and a protein with an amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

39. (new) The method of claim 36, wherein said fragment of said first CYK-4 GTPase activating protein comprises the N-terminal region containing amino acids 1-120.

40. (new) The method of claim 37, wherein said fragment of said second CYK-4 GTPase activating protein comprises the N-terminal region containing amino acids 1-120.

41. (new) The method of claim 35, wherein said first CYK-4 GTPase activating protein or fragment thereof is immobilized on a solid support, and wherein said second CYK-4 GTPase activating protein or fragment thereof is labeled.

42. (new) The method of claim 41, wherein said label is a radioisotope, a fluorescent label, a hapten label, a peptide label, or an enzyme label.

43. (new) The method of claim 35, wherein said first CYK-4 GTPase activating protein or fragment thereof is identical to said second CYK-4 GTPase activating protein or fragment thereof.

44. (new) The method of claim 35, wherein said first CYK-4 GTPase activating protein or fragment thereof is different from said second CYK-4 GTPase activating protein or fragment thereof.